

**Environmental Assessment**

**Jim Moore – Sharon Church 230 kV Transmission Line**

**prepared for  
Rural Utilities Services**



**April 2008**

**prepared by  
Georgia Transmission Corporation**

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## 1. INTRODUCTION

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The purpose of this Environmental Report (ER) is to evaluate the significance of environmental impacts that may arise from the construction of the Jim Moore Road – Sharon Church 230 kV Transmission. Georgia Transmission Corporation (Georgia Transmission) will construct the Jim Moore Road – Sharon Church project in Gwinnett and Barrow Counties, Georgia (**Figure 1**). Georgia Transmission requests financing from the Rural Utilities Service (RUS) for the construction of the new transmission line.

Georgia Transmission anticipates that the Rural Utilities Service (RUS), formerly the Rural Electrification Administration, may take a Federal action related to this project. The RUS action for this project involves project financing and requires the preparation of an Environmental Report (ER) in compliance with 7 CFR Part 1794, RUS' Environmental Policies and Procedures, and 40 CFR Parts 1500-1508, the regulations promulgated by the Council on Environmental Quality for implementing the National Environmental Policy Act (NEPA) of 1969 (42 USC et seq.). This ER will examine the environmental impacts of the proposed Jim Moore Road – Sharon Church 230 kV Transmission Line and demonstrate to the RUS that the project meets the criteria for a Finding of No Significant Impact (FONSI) as stated in 7 CFR Part 1794.

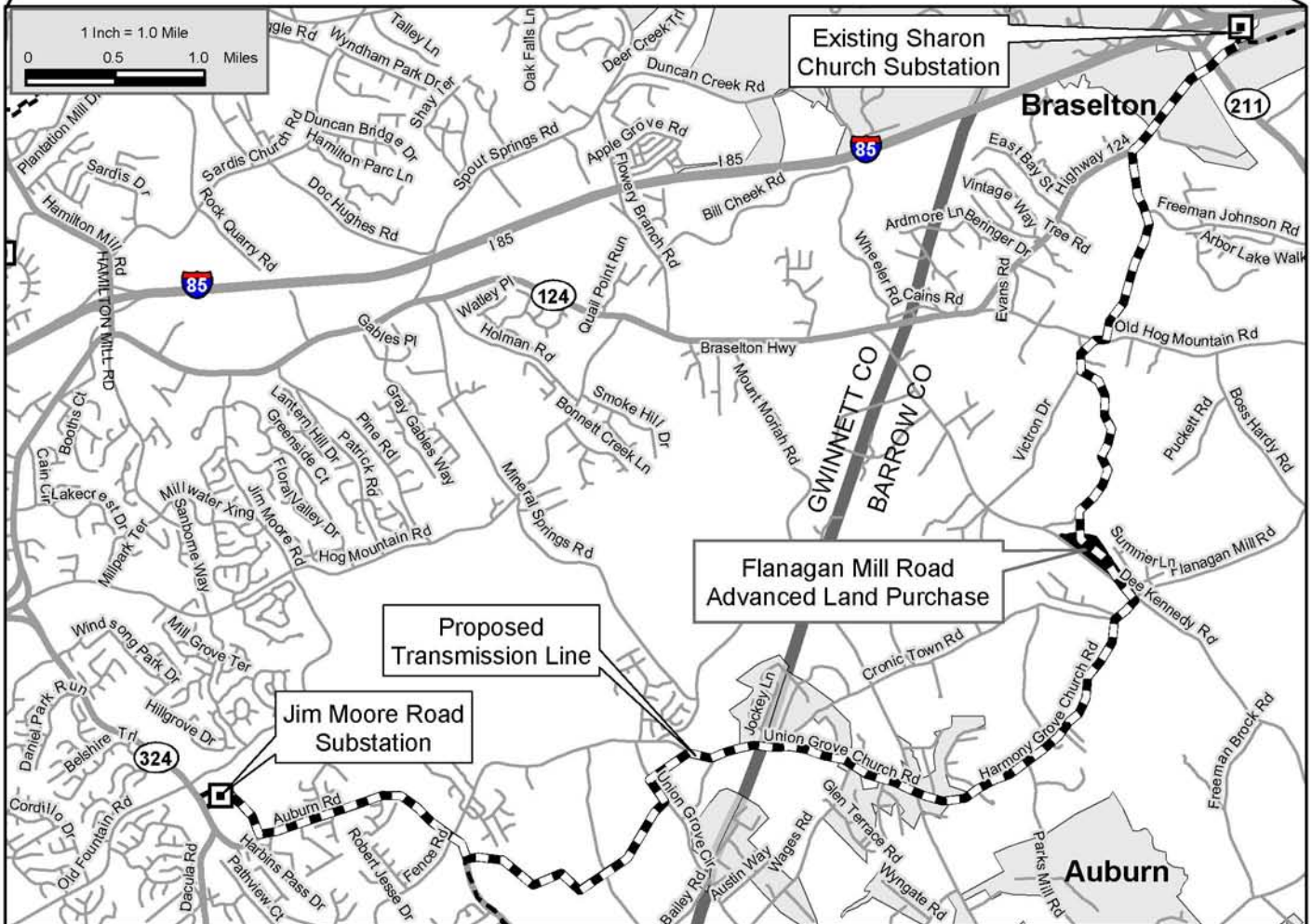
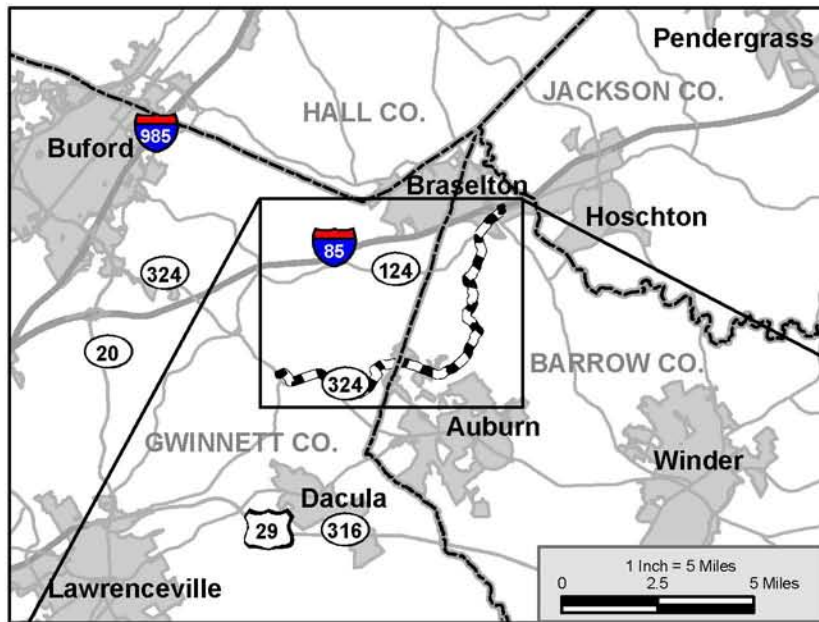
This ER will also address other laws, regulations, executive orders, and guidelines promulgated to protect and enhance environmental quality such as the Endangered Species Act, the National Historic Preservation Act, the Farmland Protection Policy Act, the Clean Water Act, and executive orders governing floodplain management and wetland protection.

## 2. PROJECT PARTICIPANTS

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Georgia Transmission Corporation is an electric transmission cooperative established under the laws of the State of Georgia in 1997. The not-for-profit cooperative, headquartered in Tucker, GA, provides electrical transmission service by building, maintaining, and owning electric power transmission facilities (transmission lines and substations) to serve its retail electric distribution cooperative (EMC) members. This includes 39 of the 42 customer-owned EMC's in the State of Georgia, whose members serve more than two million residential, commercial and industrial customers throughout Georgia. Their combined service territories cover more than two-thirds of the state. Georgia Transmission, through its member systems, serves all or portions of 157 of the 159 counties in the State of Georgia. The membership of the distribution cooperatives consists of residential, commercial, and industrial consumers, generally within specific geographic areas, constituting an aggregate of about 1,631,918 members served as of January 2008. The number of members served represents more than 4.5 million people in a service area covering 40,000 square miles (103,602 square kilometers), or nearly 73 percent of the land area of Georgia.





# JIM MOORE RD - SHARON CHURCH

230 kV Transmission Line

From GTC take I-285 north to I-85 north. Continue north on I-85 to the Hamilton Mill Rd exit. Take a right onto Hamilton Mill then take a right onto State Hwy 124/Braselton Hwy. Take a left on State Hwy 324/Gravel Springs Rd and continue south. State Hwy 324 will turn into State Hwy 324/Auburn Rd/Hog Mountain Dacula Rd. Follow this road approx. 1.5 miles; the Jim Moore Road substation site will be on your left.



**Figure 1**  
**Project Location Map**



Project No: P77850

Date: 02/07/08

Source: GDT

Plot: C. Tasich

As of February 2008, GTC owns and maintains approximately 2,898 miles of transmission line and 616 transmission and distribution stations of various voltages. Georgia Transmission provides transmission capacity to the member systems through participation in the Integrated Transmission System (ITS), which consists of transmission facilities owned jointly by Georgia Transmission, Georgia Power Company (Georgia Power), the Municipal Electric Authority of Georgia (MEAG), and the City of Dalton Utilities. Parity in ownership of the ITS depends on the load served by each of the owners and varies slightly from year to year, which requires that periodic financial adjustments be made. While the transmission of wholesale electrical power throughout the State of Georgia is dependent upon the cooperation of the owners of the ITS, each of these utilities competes for new loads within the state.

Jackson EMC, headquartered in Jefferson, Georgia, is an electric power distribution cooperative serving members in Banks, Barrow, Clarke, Franklin, Gwinnett, Hall, Jackson, Lumpkin, Madison, and Oglethorpe Counties. According to the *2008 GEMC Directory*, Jackson EMC owns over 13,101 miles of distribution line and serves approximately 171,197 members. The existing Jim Moore Road and Sharon Church Substations, the Jim Moore Road – Sharon Church 230 kV Transmission Line, and the Flanagan Mill Advanced Land Purchase Substation will serve Jackson EMC members in eastern Gwinnett and western Barrow Counties.

### 3. PROJECT DESCRIPTION

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This project will involve the purchase of easement for the Jim Moore Road – Sharon Church 230 kV Transmission Line in Gwinnett and Barrow Counties, Georgia (**Figure 2**). Georgia Transmission will also purchase approximately 21-Acres (8.5-Hectares) for the Flanagan Mill Road Advanced Land Purchase property to serve anticipated loads at the Dee Kennedy and Flanagan Mill Road intersection. Georgia Transmission will also purchase about 41.6-Acres (16.8-Hectares) of easement for about 10.6-Miles (17.1-Kilometers) of transmission line.

The 230 kV Transmission Line will be constructed beginning at the existing Georgia Transmission Jim Moore Road 230/25 kV Substation, which is approximately 700-Feet (215-Meters) southeast of the Auburn Road/State Route (SR) 324 and Jim Moore Road intersection. The corridor from the existing Jim Moore Road Substation includes rebuilding the existing Jim Moore Road 230 kV Transmission for 1.6-Miles (2.6-Kilometers) paralleling SR 324 (Auburn Road). The corridor then proceeds cross country in an eastern direction 1.5-Miles (2.4 Kilometers) until reaching East Union Grove Circle. The corridor briefly parallels East Union Grove Circle for 0.2-Miles (0.3-Kilometers) and proceeds cross country again for 0.3-Miles (0.5-Kilometers) reaching Union Grove Church Road. The corridor then turns northeast down Union Grove Church Road, changing names to Harmony Church Road after Mount Moriah Road intersection, for 3.1-Miles (5.0-Kilometers) until reaching Dee Kennedy Road. The corridor then turns north for 3.9-Miles (6.3-Kilometers), crossing through the Flanagan Mill Road







ALP site, paralleling first with Fleeman Mill Road, then Old Victron School Road, and finally SR 124 to the existing Sharon Church Substation.

The proposed transmission line is approximately 10.6-Mile (17.1-Kilometers), which is almost entirely roadside. The corridor will primarily be single concrete or steel poles with a 25-Foot (7.6-Meter) Right-of-Way construction for the roadside section and a 100-Foot (30.5-Meter) Right-of-Way for the cross-country areas. However, the first 1.6-Miles (2.6-Kilometers) of the line will rebuild a portion of the existing Jim Moore Road 230 kV Tap Transmission Line as a double circuit 230 kV Transmission Line. No additional easement is required for this section. The Pole heights for the double circuit section will range from approximately 144 to 154-Feet (44 to 47-Meters) above ground and will be placed in the approximate location of the existing pole locations of the Jim Moore Road 230 kV Transmission Line. Pole heights for the rest of the corridor will range from approximately 80 to 120-Feet (24 to 37-Meters) above ground and will generally be placed at intervals of 400 to 650-Feet (122 to 198-Meters). Access to the transmission line will primarily be from adjacent roads; contained within the proposed transmission line easement; or from existing side streets to minimize environmental impacts. The proposed transmission line will be constructed with 1351 Aluminum Conductor Steel Reinforced (ACSR).

## 4. PROJECT JUSTIFICATION

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Due to rapid residential and commercial growth of about 6% per year, Jackson EMC expects to serve more than 50 MVA of load at the existing Jim Moore Road 230/25 kV Substation by 2010. The 2010 projections indicate that the Jim Moore Road 230/25 kV and Sharon Church 230/25 kV Substations combined would have exposure totaling approximately 300 MVA-Miles, leaving the area served by the substations at risk for loss of power. The continuation of the existing Jim Moore 230 kV Transmission Line to the existing Sharon Church 230/25 kV Substation will create a reliable transmission corridor between the existing Jim Moore Road and Sharon Church Substations, providing a second transmission source to both substations. In addition, based on projected area loading and substation service boundaries, Jackson EMC has identified, through its long-range plan, the need for a future 230/25 kV substation near the intersection of Dee Kennedy Road and Flanagan Mill Road.

Given the current situation, Georgia Transmission and Jackson EMC anticipate the following problems serving future loads in the study area:

Future loading:

- The existing Jim Moore Road 230/25 kV Substation is projected to reach capacity beginning in summer 2010;
- The existing Progress Center 230/25 kV substation is projected to overload in summer 2013;
- The existing Rock Quarry 115/25 kV Substation is projected to reach capacity in summer 2014;
- There will be 235 MVA-miles on the existing Jim Moore Road 230 kV Transmission Line tap with 50.03 MVA on 4.7 miles of Transmission Line

by summer 2010, leaving the Jim Moore Substation at risk without an adequate backup source;

- The existing Braselton 230/25 kV Substation is projected to overload in 2016;
- The area load capacity is projected to load beyond 80% in 2012;

If the existing Jim Moore Road 230/25 kV Substation source were lost:

- The existing Dacula 115/25/12 kV Substation distribution is projected to overload as early as summer 2007;
- The existing Rock Quarry 115/25 kV Substation would overload as early as summer 2008, with distribution circuit overloads by 2011;
- The existing Progress Center 230/25 kV Substation could experience overloads as early as summer 2009;

The area currently served by the existing Jim Moore Road 230/25 kV and surrounding substations is a mixture of very dense residential and commercial load. Continued growth will overload the area capacity by the end of the study period. A transmission line between the existing Jim Moore 230/25 kV and Sharon Church 230/25 kV Substations would provide increased service to the area while providing a strong backup source for both substations (See Project Release, Necessity and Evaluation of Electrical Alternatives in Appendix 9.4).

## 5. PROJECT ALTERNATIVES

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### 5.1 ELECTRICAL ALTERNATIVES

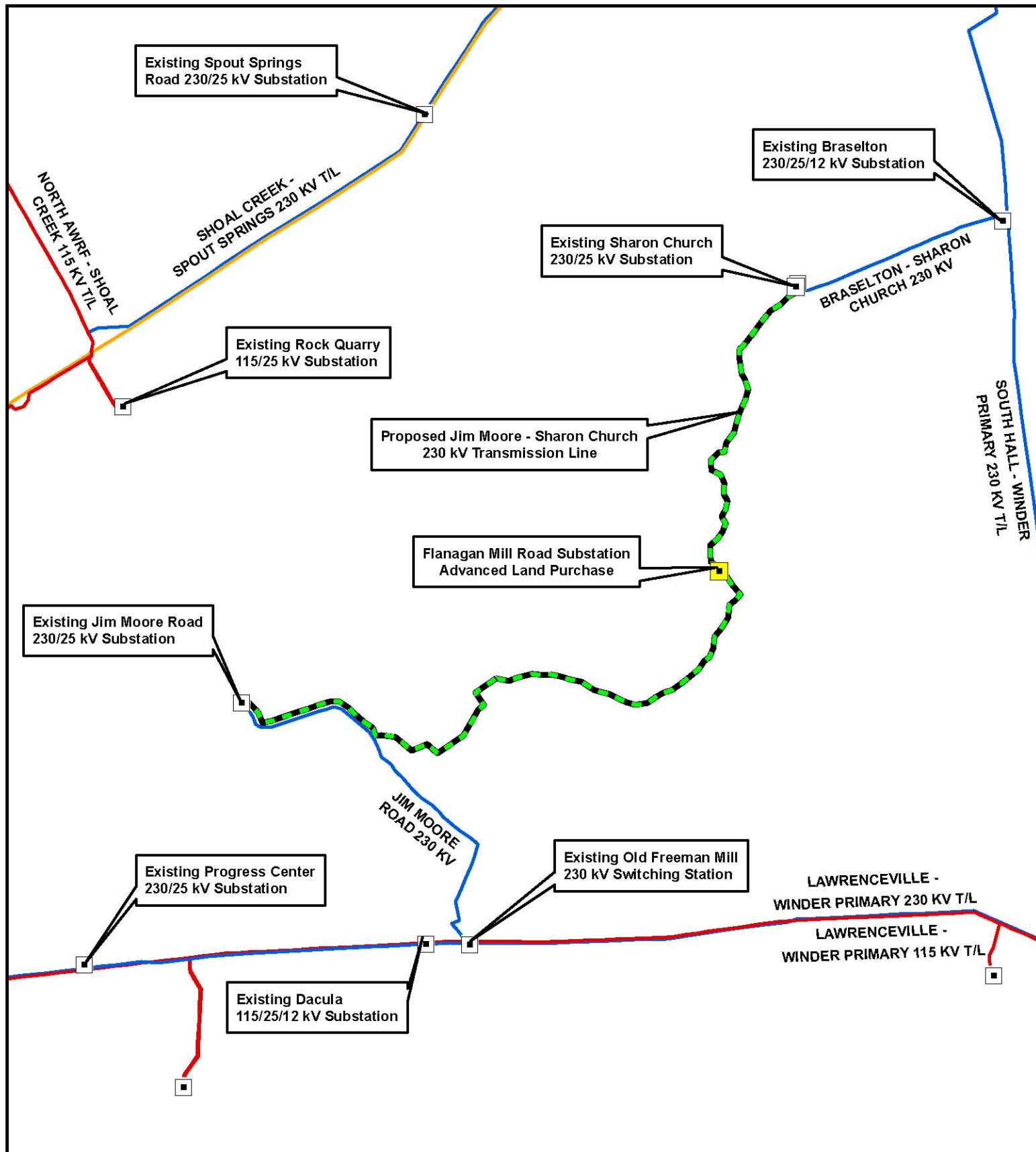
Four electrical alternatives were evaluated for the proposed Jim Moore Road – Sharon Church 230 kV Transmission Line project to fulfill the requirements identified in Section 4.0 (**Figure 3**). These alternatives included the No Build option and upgrades to the existing distribution system.

**Preferred Alternative:** Construction of the new Jim Moore Road – Sharon Church 230 kV Transmission Line in 2010. This alternative involves the following: :

- Conversion of 2.6 – Miles of distribution from the existing Dacula 115/25/12 kV Substation and additional distribution construction from the Jim Moore Road 230/25 kV Substation.
- Increasing the capacity of the existing Rock Quarry 115/25 kV Braselton 230/25 kV, and Progress 230/25 kV Substations.
- Construction of the approximately 10.6-Mile (17.1–Kilometer) Jim Moore Road – Sharon Church 230 kV Transmission Line.

**Alternative 1:** Enhancement of the existing distribution system, postponing the Jim Moore Road – Sharon Church 230 kV Transmission Line project until 2015. This alternative involves the following:

- Conversion or installation of about 8.8 – Miles of distribution from the existing Dacula 115/25/12 kV, Progress Center 230/25 kV, and Rock Quarry 115/25 kV Substations in 2007.



### Jim Moore Road - Sharon Church

230 kV Transmission Line

**Figure 3:**  
Electrical Alternatives

County: Barrow  
& Gwinnett

Date: 3/20/08

Project #: P77850

■ Proposed  
Substation Site

□ Existing  
Substation Site

— Existing 46 kV Transmission Line

— Existing 115 kV Transmission Line

— Existing 230 kV Transmission Line

— Proposed  
Transmission Line



GeorgiaTransmission



1" = 7,000 Feet Plot: D. Enderle

0 3500 7000  
Miles

- Increasing the capacity of the existing Rock Quarry 115/25 kV Braselton 230/25 kV, and Progress 230/25 kV Substations.
- Construction of the approximately 10.6-Mile (17.1-Kilometer) Jim Moore Road – Sharon Church 230 kV Transmission Line in 2015.

**Alternative 2:** Rebuilding the 4.5-Mile Jim Moore Road 230 kV Transmission Line and the 2.3-Mile Braselton – Sharon Church 230 kV Transmission as double circuit 230 kV transmission lines. This alternative involves extensive rebuilding on a single line, which provides far less reliable service than separate transmission lines. This option also fails to address area bulk system requirements.

The **No Build Alternative** fails to address the growing substation capacity problems, long-term voltage and distribution problems, reliability, and load growth increases Jackson EMC anticipates.

### **Conclusion**

Construction of the Jim Moore Road – Sharon Church 230 kV Transmission Line was identified as the option which best provides a strong source in the area to both relieve the present situation and offer flexibility to the transmission system for projected loads in the eastern Gwinnett and western Barrow County areas.

The No Build Alternative fails to address the growing substation capacity problems, the long-term voltage and distribution problems, and load growth increases Jackson EMC anticipates.

Building the Jim Moore Road – Sharon Church 230 kV Transmission Line provides the greatest reliability and flexibility to the system while significantly reducing risks to distribution and is the preferred electrical alternative for the project (See **Project Release** including Necessity and Evaluation of Electrical Alternatives in Appendix 9.4).

## **5.2 PROJECT STUDY AREA**

The study area for the proposed transmission line is located between the existing Jim Moore Road 230/25 kV and the Sharon Church 230/25 kV Substations in northeastern Gwinnett and northern Barrow Counties near the towns of Braselton and Auburn, Georgia in metropolitan Atlanta. The northern limit of the study area is Interstate 85. The western portion of the study area is rapidly becoming a dense suburban landscape with a newly developed 890-Acres (360-Hectares) county park near the existing Jim Moore Substation. The eastern portion is somewhat more rural, with some residential and commercial development occurring throughout. Rapid residential growth has occurred in the Jim Moore Road to Sharon Church areas and along the SR324 corridor with anticipated commercial development to follow. The study area contains sufficient area to develop reasonable routes for the purposes of this project, which could minimize Community and environmental impacts.

Also, in this study area, a potential substation area was identified at the intersection of Dee Kennedy Road and Harmony Grove Road/Flanagan Mill Road.

This area is 5.2-Miles (8.4-Kilometers) northeast of the existing Jim Moore Road Substation and 3.0-Miles (4.8-Kilometers) south of the existing Sharon Church Substation. A triangular-shaped site has been identified for an advanced land purchase for the future 230/25 kV substation to serve this area probably within the next ten years (**Figure 2**). It is bordered by Dee Kennedy Road to the southwest, and Flanagan Mill Road to the southeast. This future substation site was taken into account during the routing process of the line.

### **5.3 TRANSMISSION LINE CORRIDOR ALTERNATIVES**

Georgia Transmission evaluated alternative macro corridors between the existing Jim Moore Road 230/25 kV and Sharon Church 230/25 kV Substations. Land use, topography, existing and proposed development, transportation and utility corridors, parks, and the project's electrical requirements were considered in defining a study area for analysis through which any practical transmission line may be located. Georgia Transmission and contractually related consultants performed research, data collection, analysis, mapping, and statistical evaluations together with figure and report preparation to determine the most suitable corridor for the proposed transmission line.

Land suitability analysis began once all related data within the project study area was acquired and entered into the Geographic Information System database (GIS). Georgia Transmission uses a standardized GIS based software methodology developed in partnership with the Electric Power Research Institute (EPRI) for transmission line routing and substation siting studies.

This software is a geographic feature layering system that creates a map of suitability areas in a continuum from most appropriate areas to construct substation or transmission line facilities, called opportunities, to areas which are least suitable to site electrical facilities, called constraints. The geographic database contains layers such as hydrography, land use, land cover, slope, threatened and endangered species, historic and archaeological resources, and any other structures within the study area. To create overall suitability values, data layers are given a numerical suitability values ranging from 1 to 9, which consider community, natural environment, geographic, and engineering information. Areas of opportunity for transmission lines are assigned lower numbers than less desirable areas.

These values are added to the GIS database, which uses these numbers to generate a land suitability map composite for the project study area. Layering each of the assigned values within the computer's spatial framework creates the composite map. This framework consists of pixel layers that are stacked and added with values such as those listed in the table above. Each pixel area in the suitability map composite is the sum of the layered values. For example, a pixel, which has a value of 2 represents an area of greater opportunity than an area with a 9 value.

Macro Corridors are generated using the data layers. The top 1, 2, and 3% corridors are used, which are the areas of least impact to communities and the



natural environment and are best suited for the construction of a transmission line. The top 3% of these potential corridors were identified (**Figure 4**) and used to develop suitable alternatives for the transmission line.

The existing Jim Moore Road 230/25 kV and Sharon Church 230/25 kV Substations as well as the location of the Flanagan Mill Road Advanced Land Purchase were considered during routing to develop alternative corridor segments (**Figure 5a**). Other areas were eliminated due to engineering, environmental, or access limitations and concerns. Eighty alternate segments were then generated within the top 3% macro corridor areas. For simplification purposes, these segments were narrowed through analysis to the most suitable and potentially constructible routes. The majority of these segments co-located with roads and highways with a mix of cross-country segments throughout the study area.

These segments produced an extremely large number of possible combinations between the existing Jim Moore Road and Sharon Church Substations (approximately 4,700). To efficiently evaluate the segments, 6 groups of segments were developed that shared common start and end points. These groups fit into six main series, labeled N (N1–N21), A (A1–A12), B (B1–B140), C (C1–C140), D (D1–D13), and E (E1–E13). The best routes from these series were further evaluated by the project team in terms of 1) Visual Issues, 2) Community Issues, 3) Schedule Delay Risk, 4) Cost, 5) Permitting, 6) Construction/Maintenance, 7) Accessibility to the transmission line, and 8) Environmental Justice were used to determine the preferred route.

**N SERIES: Northern route paralleling SR 324 and SR 124:** The first group included routes from the Jim Moore Road Substation to the Sharon Church Substation in the northern portion of the study area. These routes parallel SR 324 and SR 124, sharing the common segments 2 and 3. This analysis included options connecting to the Flanagan Mill Road Advance Land Purchase (ALP) substation site (Segments 57, 55, and 52). Some combinations were studied as double circuited options to provide looped service for the Flanagan Mill Road ALP. This group formed 21 possible segment combinations for further comparison and analysis and included segments (3, 4, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, and 73). Routes for this group were labeled N1 through N21.

The segments combinations in this group formed routes that connected the existing Jim Moore Road Substation going north on SR 324 then east on SR 124 to the existing Sharon Church Substation.

The best route selected from the N Series was **Route N1** (Segments: 3, 62, 72, 73, 57, 55, and 52).











**A Series: Segments from the existing Jim Moore Substation to Rock Creek east of Fence Road (Segments 11 and 12)** If chosen, segments 1, 6, 9, and 10 would be double circuited with the existing Jim Moore Road 230 kV transmission line. This group formed 12 possible segment combinations for further comparison and analysis (Segments 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, and 12). Routes for this group were labeled A1 through A12. From this series, four routes were further examined. Double-circuiting the existing Jim Moore Road 230 kV Transmission Line was preferred over paralleling SR324 or Bailey Wood Road (Segment 5), because it would require less right-of-way and would share poles with an existing transmission line. Alternative configurations outside the existing right-of-way would have impacted more land (0.2 mile greater length and 12 more parcels) along SR324, including residential, church and day-care properties.

As the route leaves SR 324 to the east (Segment 12), an alternate route (Segments 10 and 11) continued south of Fence Road approximately 750 feet before turning east to Rock Creek. The preferred alternative (Segment 12) turning east cross country at an earlier point is shorter and would impact five fewer parcels and residential properties.

The preferred A Series route was A1 (Segments 1, 6, 9, 12). This combination was preferred because it presents fewer impacts to the community; it includes fewer parcels; and shares poles with an existing transmission line.

**B and C Series: Segments from Rock Creek (A1) to the proposed Flanagan Mill Road ALP Substation site immediately west of the Dee Kennedy Road and Flanagan Mill Road intersection.**

The **B Series** alternatives followed Clack Road or a parallel route to the northern end of the Flanagan Mill Road ALP site at the Dee Kennedy and Fleeman Road intersection (including Segments 14, 16, 20, 21, 22, 26, 27, 28, 31, 32, 33, 34, 41, 43, 44, and 51). This group formed 140 possible segment combinations. Routes for this group were labeled B1 through B140.

The **C Series** alternatives followed a southern path cross-country then paralleling Harmony Grove Church Road to the southern end of the Flanagan Mill Road ALP site at Dee Kennedy Road (Segment 50). This group formed 140 possible segment combinations (including Segments 13, 17, 18, 19, 23, 25, 30, 35, 36, 37, 38, 39, 45, 46, 48, and 50). Routes for this group were labeled C1 through C140.

The best segment combinations from the B and C Series were then compared to determine the best route. The Flanagan Mill Road Advanced Land Purchase site is near the Flanagan Mill Road and Dee Kennedy Road intersection. Cross-country routes from Rock Creek northeast to Fence Road (Segments 11, 12, 14, 15, 16, 18, 19, 20, 21, 22, 24, 26, 27), paralleling Fence Road, then northeast along Clack Road and cross-country to Dee Kennedy Road (Segments 28, 31, 32, 33, 34, 41, 43, 44, 51) were compared with other northeastern-trending routes that were primarily cross-country and paralleled property lines, roadside along Cronin Town Road (Segments 36, 37, 39, 40, 45, 48), or roadside paralleling Harmony Grove Church Road (Segments 12, 13, 17, 23, 25, 30, 35, 38, 46, 50) to Dee Kennedy Road.

The preferred route from the B and C Series was Route C1. This section included segments 12, 13, 17, 23, 25, 29, 30, 35, 38, 46, 50. Route C1 leaves SR 324 cross-country crossing Rock Creek to the northeast to Fence Road east of Clack Road (Segments 12,13,17,23, 25) near the Gwinnett and Barrow County line, paralleling Union Grove Church Road and Harmony Grove Church Road to the Dee Kennedy Road and Flanagan Mill Road intersection (Segments 29, 30, 35, 38, 46, 50). Route C1 was chosen because it has significantly lower impacts to the natural environment (2 acres less natural forest, half the number of stream crossings, a third less floodplain area crossed). Additionally, the preferred route is 0.3 mile shorter, has more co-location with existing road corridors (0.2 mile), and crosses six fewer parcels.

**D and E Series: Segments from Rock Creek (A1) to the proposed Flanagan Mill Road ALP Substation site west of the Dee Kennedy Road and Flanagan Mill Road intersection.**

The D Series alternatives proceed from the northern end of the Flanagan Mill Road ALP Substation site (Segments 51, 52, 54, 55) to the existing Sharon Church Substation. This group formed 13 possible segment combinations, including segments 52 through 73. Routes for this group were labeled D1 through D13.

The E Series alternatives proceed from the southern end of the Flanagan Mill Road ALP Substation site (Segments 50, 52, and 53) to the existing Sharon Church Substation site. This group formed 13 possible segment combinations from the southern end of the Flanagan Mill Road Advanced Land Purchase Area to the termination point at Sharon Church Substation and included segments 52 through 73. Routes for this group were labeled E1 through E13.

Segment combinations from the groups D and E were compared to each other. The best segment combinations from the above two groups were also compared to each other to determine the least impact route. The preferred segment combination E6 (segments 52, 54, 65, 69, 71, 72, and 73) follows Dee Kennedy Road northwest to Fleeman Road north to Old Victron School Road and Victron Road to SR 124 to the existing Sharon Church Substation. The next preferred segment combination E1 (segments 52, 55, 57, 62, 72, and 73) continued along Dee Kennedy Road to SR 124 and then to the existing Sharon Church Substation. The preferred route E6 did not cross developments (proposed, future, or under construction) at the time of analysis. Route E6 is slightly shorter and parallels existing roads to a greater extent than the Route E1, which had more forest and stream impacts.

From the segment series, three final routes developed for comparison analysis: Route N1 (Segments 3, 62, 72, 73, 57, 55, and 52), Route A1 C1 E6 (Segments 1, 6, 9, 12, 13, 17, 23, 25, 29, 30, 35, 38, 46, 50, 52, 54, 65, 69, 71, 72, & 73), and Route A1 C1 E1 (Segments 1, 6, 9, 12, 13, 17, 23, 25, 29, 30, 35, 38, 46, 50, 52, 55, 57, 62, 72, & 73).

Route N1 (Segments 3, 62, 72, 73, 57, 55, and 52) begins at the existing Jim Moore Road Substation; proceeds north along SR 324 for 1.6-Miles (2.6-Kilometers) and then turns east along SR 124 for 8.9-Miles (14.3-Kilometers) to the existing Sharon Church Substation. In addition to the route between the two

substations a double circuit about 2.2-Mile (3.5-Kilometer), looped with two transmission lines on each pole (Segments 52, 55, and 57), was evaluated paralleling Dee Kennedy Road to the Flanagan Mill Road ALP site. The majority of this approximate 12.7 – Miles (20.4 – Kilometers) alternative route will be constructed parallel to roads.

**Route N1** involves the following:

- Construction of approximately 12.5 – Miles (20.1 – Kilometers) of the transmission line adjacent to roads and about 0.2 – Miles (0.3 – Kilometers) of cross-country transmission line.
- Requires the purchase of easements totaling approximately 55.5 – Acres and involves about 355 parcels.
- Crosses four streams located within the proposed easement, which will be crossed using existing roads for construction and maintenance.
- Presents significant impacts to people due to the proximity of several existing and proposed subdivisions located along the entire length of the route.
- Crosses one mapped floodplain associated with the Little Mulberry River and one small National Wetland Inventory (NWI) site (approximately 0.1 acre) along SR 124.
- Good access to poles from the roads.
- Includes proximity to approximately 322 residences, 13 proposed developments, six churches, four schools, and three day care facilities within 300 feet of the route.
- There are nine structures eligible for the National Register of Historic Places (NRHP) within the Area of Potential Effect (APE) of the route.

**Route A1, C1, E6** (Segments 1, 6, 9, 12, 13, 17, 23, 25, 29, 30, 35, 38, 46, 50, 52, 54, 65, 69, 71, 72, & 73) begins at the Jim Moore Road Substation, including rebuilding a double circuit section of the existing Jim Moore Road 230 kV Transmission for 1.6-Miles (2.6-Kilometers). The corridor then turns cross country in an eastern direction 1.5-Miles (2.4 Kilometers) until reaching East Union Grove Circle. The corridor briefly parallels East Union Grove Circle for 0.2-Miles (0.3-Kilometers) and travels cross country again for 0.3-Miles (0.5-Kilometers) until reaching Union Grove Church Road. The corridor travels down Union Grove Church Road (changing names to Harmony Church Road after the Mount Moriah intersection) for 3.1-Miles (5.0-Kilometers) until reaching Dee Kennedy Road. The corridor then turns north for 0.5-Miles (0.8-Kilometers), paralleling Dee Kennedy Road to the Flanagan Mill Road Advanced Land Purchase Site until reaching Fleeman Mill Road. The route parallels Fleeman Mill Road for 0.9-Miles (1.4-Kilometers), then cross county for 0.4-Miles (0.6-Kilometers) to Hog Mountain Road; then parallels Hog Mountain Road for 0.2 Miles (0.3-Kilometer); north on Old Victron School Road for 1.2-Miles (1.9-Kilometers), and finally down State Route 124 for 0.8-Miles (1.3-Kilometers) to terminate into Sharon Church Substation. This alternative route is 10.7-Miles (17.2-Kilometers)

**Route A1, C1, E6** involves the following:

- Construction of approximately 1.6-Miles (2.6-Kilometers) rebuilding the existing Jim Moore Road 230 kV Transmission Line; 6.8 – Miles (10.9 – Kilometers) constructed adjacent to roads; and approximately 2.3 – Miles (3.7 – Kilometers) constructed cross county.

- Requires the purchase of easements totaling approximately 51.3 – Acres and involving about 211 parcels.
- Crosses eight mapped streams located within the proposed easement.
- Adequate building setback where this route parallels roads.
- Crosses two mapped floodplains associated with the Little Mulberry River and Rock Creek and one NWI site (approximately 0.1 acre) associated with the ponds above the Rock Creek tributary crossing.
- Good access to poles except in the 0.3-Mile (0.5-Kilometer) section between Rock Creek and its nearest tributary to the east. This area would require a stream crossing for construction purposes.
- There are approximately 237 residences, three proposed developments, and three churches within 300 feet.
- There are 14 structures eligible for the NRHP within the APE of the route.

**Route A1, C1, E1** (Segments 1, 6, 9, 12, 13, 17, 23, 25, 29, 30, 35, 38, 46, 50, 52, 55, 57, 62, 72, & 73) begins at the Jim Moore Road Substation, including rebuilding a double circuit section of the existing Jim Moore Road 230 kV Transmission for 1.6-Miles (2.6-Kilometers). The corridor then heads cross country in an eastern direction 1.5-Miles (2.4 Kilometers) until reaching East Union Grove Circle. The corridor briefly parallels East Union Grove Circle for 0.2-Miles (0.3-Kilometers) and travels cross country again for 0.3-Miles (0.5-Kilometers) until reaching Union Grove Church Road. The corridor travels down Union Grove Church Road (changing names to Harmony Church Road after the Mount Moriah intersection) for 3.1-Miles (5.0-Kilometers) until reaching Dee Kennedy Road. The corridor then turns north for 2.2-Miles (3.5-Kilometers) along Dee Kennedy Road, passing through the Flanagan Mill Road ALP site until reaching SR 124. The corridor travels northeast along State Route 124 for 2.7-Miles (4.3-Kilometers) to the existing Sharon Church Substation. The total length of this alternative route is 11.6-Miles (18.0-Kilometers).

**Route A1, C1, E1** involves the following:

- Construction of approximately 1.6-Miles (2.6-Kilometers) rebuilding with the existing Jim Moore Road 230 kV Transmission Line; 8.2 – Miles (11.6 – Kilometers) constructed adjacent to roads; and approximately 1.8 – Miles (2.9 – Kilometers) constructed cross country.
- Requires the purchase of easements totaling approximately 43.5 – Acres and involves about 224 parcels.
- Crosses seven blue line streams located within the proposed easement, which can be accessed from existing roads.
- Adequate building setback where this route parallels roads.
- Crosses two mapped floodplain associated with the Little Mulberry River and Rock Creek and one NWI site (approximately 0.1 acre) associated with the ponds above Rock Creek tributary.
- Good access to poles except in the 0.3-Mile (0.5-Kilometer) section between Rock Creek and its nearest tributary to the east. This area may require at least one stream crossing for construction purposes.
- Approximately 259 residences, four proposed development, three churches, and one school are located within 300 feet.
- There are fifteen structures eligible for the NRHP within the APE of the route.

#### **5.4 PREFERRED TRANSMISSION LINE ROUTE**

All three of the final routes were suitable for the construction of the Jim Moore Church – Sharon Church 230 kV Transmission Line; however, **Route A1, C1, E6** (A1 (Segments 1D, 6D, 9D, 12) C1 (12, 13, 17, 23, 25, 29, 30, 35, 38, 46, 50) and E6 (52, 54, 65, 69, 71, 72, 73) was chosen as the preferred alternative (**Figure 6**) due to a combination of factors.

State Law required Georgia Transmission to hold four public meetings in an open house workshop format in the study area during the routing process. The Barrow County meetings occurred on March 12, 2007 from 1:00 to 3:00 p.m. and from 6:00 p.m. to 8:00 p.m. at the Sharon Baptist Church on State Route 124 in Hoschton, Georgia. The Gwinnett County meetings occurred on March 15, 2007 from 1:00 to 3:00 p.m. and from 6:00 p.m. to 8:00 p.m. at the Harvest International Church on Winder Highway/State Route 124 in Dacula, Georgia. The purpose of the meetings was to inform the public about the project; of Georgia Transmission's intent to acquire easements; to inform the public of the project process; to display maps indicating the proposed transmission line route; and to answer questions and solicit public comment.

At least 30-days in advance of the first meeting, approximately 395 letters, including a map of proposed route, were mailed to residents and property owners in the study area. Additionally, notices were placed in the local newspaper. At both meetings Georgia Transmission provided displays on technical information related to the need for the project; the transmission line route selection process; real estate acquisition issues; health and safety; and environmental information. Project specialists answered questions from attendees at these displays and listened to the attendees' comments.

A total of 144 people attended the Barrow County meetings and 13 people attended the Gwinnett County meetings. The predominant concerns of residents and property owners were impacts to residences, visibility of the transmission line from residences, and tree removal. There were also questions asking why the proposed transmission line could not be routed along the State Route commercial corridor (**Route N1**). While there are commercial nodes at major intersections, the majority of this route encounters residential areas. In addition, many existing residences are located in close proximity to roads, requiring a transmission line location that is exceptionally close to residences. Finally, Route N1 is the longest and would affect the greatest number of residences of all of the routes considered.







In addition to the mailings and workshops, Georgia Transmission held a briefing for local public officials and provided a hotline for anyone to call with questions or concerns about the project. The hotline allowed citizens to call at anytime and leave a message. Calls were returned for the duration of the routing portion of the project. Georgia Transmission maintained a database of calls detailing concerns to document the opinions and concerns of the public.

Route N1 was eliminated because it was the longest; had the greatest number of residences within 300 feet; and required easements from more parcels. This route also did not parallel the existing Jim Moore Road 230 kV Transmission Line for the first part of the route, thus creating all new right-of-way. It was also exceptionally close to a number of residences along roads; there were a much greater number of residences that would be affected by this route; and there were four schools as well as three daycares located along this route.

While the remaining two routes included similar impacts, Route A1, C1, E1 was eliminated because it came in close proximity to a school and it impacted additional proposed development. It also had more residences in close proximity and a greater number of properties impacted than the preferred route.

In contrast, the preferred route Route A1, C1, E6 crossed fewer properties and developments (proposed, future, or under construction) at the time of analysis. It also impacted fewer parcels and was shorter than Route A1, C1, E1 by about 1-Mile. Like alternative A1, C1, E1, the preferred route parallels roads and shares poles with an existing transmission line, minimizing the impact to the area. While this route appeared to have a high number of structures eligible for the National Register of Historic Places in the area of potential effect, the Assessment of Effects indicated that only one structure is potentially eligible. Existing vegetation screens that resource and no adverse effect is anticipated. Finally, this route is in close proximity to the fewest number of residences. This route minimizes the impact to the community, natural environment, and cultural resources; therefore, Route A1, C1, E6 is the preferred route for the proposed project.

After discussing the route with affected property owners, the proposed transmission line was changed on individual properties at their request. For example, instead of following Segments 13 and 17, the proposed transmission line shifted further south at the property owner's request. This alternative was evaluated with the original corridor and no additional impacts are anticipated. Other changes made were slight but resulted from property owner discussions.

With all of the changes considered, the final proposed transmission line route will result in the purchase of about 41.6–Acres (16.8–Hectares) of easement for an approximately 10.6–Mile (17.1–Kilometer) transmission line.

## **6. AFFECTED ENVIRONMENT**

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The project study area, located in northeastern Gwinnett and western Barrow Counties on the Hog Mountain and Auburn, Georgia, United States Geological

Survey (USGS) 7.5-minute topographic maps. The study area is in the Winder Slope District of the Piedmont Physiographic Province, which is characterized by gently rolling topography dissected by frequent and deep narrow tributary valleys with elevations ranging from 700 to 1,000 – Feet Above Sea Level. Study area information was compiled by literature review, aerial photographic interpretation, by contacting resource agencies, and performing field surveys and inventories of the project study area.

## **6.1 LAND USE**

### **6.1.1 General Land Use**

The study area for the proposed Transmission Line is located in a growing, suburban area of Gwinnett and Barrow Counties, Georgia. Existing land use and land cover near the project consists of secondary successional mixed Hardwood – Pine forestland, small emergent wetland systems, utility and transportation corridors, commercial/residential development, and agricultural communities. (See **Appendix 9.1** for detailed descriptions.)

### **6.1.2 Prime Farmland Soils**

Through the passage of the Farmland Protection Policy Act of 1981 and the Final Rule for its implementation, 7 CFR 658, the U.S. Department of Agriculture mandated that any federal agency contemplating a land-disturbing activity should review its actions with respect to prime, unique, statewide, or locally important farmland soils. The Department of Agriculture also has internal policies requiring the Department to consider the impact of its own agency's actions on prime farmland soils.

Gwinnett and Barrow Counties have completed soil surveys of the Jim Moore – Sharon Church project area. The proposed transmission line corridor does encounter several areas of prime farmland soils. The proposed easement will include approximately 12.1-Acres (4.9–Hectares) of prime farmland soils:

#### **Barrow County**

Cecil Sandy Loam, 2 to 6 percent slope

#### **Gwinnett County**

Appling - Hard Labor complex, 2 to 6 percent slope

Cecil Sandy Loam, 2 to 6 percent slope, eroded

Hard Labor Sandy Loam, 2 to 6 percent slope

Pacolet Sandy Loam, 2 to 6 percent slope, eroded

### **6.1.3 Formally Classified Lands**

#### ***6.1.3.1 Wild and Scenic Rivers***

In Georgia, the only river designated as a Wild and Scenic River is the Chattooga River located in the northeastern part of the state (16 USC 1276). No Wild and Scenic Rivers, including the Chattooga River, are located within the project area.

#### *6.1.3.2 National Forests*

The state of Georgia has two National Forests located within its boundaries. The Chattahoochee National Forest is comprised of two units located in the mountains of North Georgia. The Oconee National Forest, also comprised of two separate units, is located in the Piedmont region north of Macon, Georgia. The Jim Moore Road – Sharon Church project is not located within any National Forest areas.

#### *6.1.3.3 State and Federal Parks*

Throughout Georgia, the Parks, Recreation, and Historic Sites Division of the Georgia Department of Natural Resources (GA DNR) operates 64 State Parks, conservation areas, and historic sites. The proposed project is not located within or adjacent to any of the resource units operated by the GA DNR. The National Park Service (NPS) of the U.S. Department of the Interior (USDI) operates 11 National Battlefield Parks, National Recreation Areas, National Historic Sites, and National Monuments. The nearest State Park is Fort Yargo State Park, which is approximately 6.5–Miles (10.5–Kilometers) to the southeast of the project study area. The closest park to the project area is the Little Mulberry Park, a county facility located approximately 0.64–Miles (1.0 – Kilometers) to the northeast of the Jim Moore Road Substation and over 716 – Feet (0.2 – Kilometers) from the roadside portion of the transmission line on SR 324.

No direct impacts to parks will result from the construction of the proposed project.

### **6.2 Floodplains**

Executive Order 11988 directs Federal agencies to avoid to the greatest extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. The location of floodplains and other flood hazard areas are normally identified using maps produced by the U.S. Department of Housing and Urban Development or the Federal Emergency Management Agency (FEMA).

Gwinnett and Barrow Counties are listed as participating communities in the National Flood Insurance Program. **Figure 7** indicates the distribution of FEMA 100-year floodplains in the project study area as shown on the Flood Insurance Rate Map (Panel 1304970025A) for Barrow County, Georgia and (Panels 130322095C and 1303220125C) for Gwinnett County, Georgia. As shown in the figure, the proposed transmission line corridor crosses two areas of mapped 100 – Year floodplain associated with the Little Mulberry River in Barrow County and Rock Creek and its tributaries in Gwinnett County. The construction of the Jim Moore Road – Sharon Church Transmission Line may require the placement of a limited number of transmission line poles within the floodplain. RUS has determined that the construction of single poles within floodplains does not adversely affect floodplains. Therefore, the proposed project will not have an adverse effect on 100-year floodplains.



